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kandidat tekhnicheskikh nauk; POLYAKOVA, A.M., inzhener; AVIMYEVA, V.D.,  
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Story fracture in structural alloyed steel. Stal' 15 no.6:545-548  
Je '55. (MLBA 8:8)

1. Institut fiziki metallov Ural'skogo filiala Akademii nauk SSSR.
2. Metallurgicheskiy zavod imeni Serova.  
(Steel, Structural--Testing)

*ISUPOV, V. F.*

DUBROV, N.F., kand. tekhn. nauk; ISUPOV, V.F., inzh.

New developments in research, Stal' 18 no. 4:339-340 Ap '58.  
(Rolling (Metalwork)) (MIRA 11:5)

AUTHOR: Ismov, V. F. Engineer

133-58-4-20/40

TITLE: On the Serov Metallurgical Combine (Na Serovskom metallurgicheskom kombinat)

PERIODICAL: Stal', 1958, Nr 4, p 340 (USSR)

ABSTRACT: An improvement in the surface quality of rolled semis of ball bearing steel. Rolled semis of this steel had many surface defects which were found to be caused by worn passes of steel rolls of the reducing stand. Whereupon bars cut out from the ends of rolled strip had considerably more defects than those from the middle part. On replacement of steel rolls by cast iron rolls the durability of passes improved. End bars after cutting of the rolled strip were passed for drawing only after dressing. Middle bars are not dressed. As a result the volume of dressing works decreased by about 80%. A new scheme of rolling on the mill 850. The mill consists of three stands in line. The number of passes, depending on the weight of the ingots and the cross-section of rolled semis was in the reducing stand 19-25, in the roughing stand 1-6 and in the finishing stand 1-4. In the new scheme of rolling ingots on the mill, two passes were

Card 1/2 transferred from the reducing stand to the roughing stand.

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133-58-4-20/40

In order not to increase the number of passes in the roughing stand, rhomboidal passes were replaced by rectangular ones which permitted increasing reductions per pass. With the new scheme the output of the mill increased by 5%.

1. Rolling mills--Operation    2. Rolls--Properties    3. Rolling  
mills--Production

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133-58-4-32/40

AUTHOR: Isupov, V. F.

TITLE: On the Serov Metallurgical Combine  
(Na Serovskom metallurgicheskome kombinat)

PERIODICAL: Stal', 1958, Nr 4, p 369 (USSR)

ABSTRACT: a) "Warm" drawing. In order to prevent breaks of sharpened ends during cold drawing of some steels of a low plasticity (30KhGSA, 35KhGSA, 60C2 etc.) or to prevent the formation of deep cracks on the surface of rods, drawing at a temperature of 80 to 100°C was tested. Rods were heated in boiling lime water (during liming after pickling) for 6-10 min. and immediately passed for hot drawing. The process took the normal course without the formation of surface cracks. The proportion of defects due to cracks decreased by 4.2 times for 35KhGSA steel and 3.7 times for 60C2 steel.

b) Electrical finishing of drawing dies. A method of preparation of dies based on an anodic solution of "pobedit" (metal of dies) on electrolysis in a saturated aqueous solution of calcined soda (electrode from a soft steel) was developed. A die of 15 mm in diameter can be treated in 10 min. Moreover, the surface of the die is more active (retains the lubricant better).

Card 1/1 more active (retains the lubricant better).  
1. Steel--Fracture 2. Dies--Preparation 3. Steel--Processing

AUTHOR: Isupov, V. F. Engineer

133-58-4-34/40

TITLE: On the Serov Metallurgical Combine (Na Serovskom metallurgicheskom kombinat)

PERIODICAL: Stal', 1958, Nr 4, p 376 (USSR)

ABSTRACT: An improvement in the design of the open hearth head. In the new design the hot air is injected through a special encircling channel into the end of the gas caisson. Air from the regenerators is passed into the melting space through two air ports of a cross section of  $0.75 \text{ m}^2$ /upper, (above the caisson) and of  $0.28 \text{ m}^2$  (on both sides). Compressed air is preheated in the encircling channels to  $920-895^\circ \text{C}$  and is used in a quantity of  $350-370 \text{ m}^3/\text{hr}$ . The total supply of the compressed and injected air makes 7.9% of the total air supplied to the furnace. The specific consumption of conventional fuel increased by 2.7-3.7 kg/ton in comparison with that of a Venturi head, the duration of the heat decreased by 10-30 min, and the hourly output increased by 3.8%. A rapid filling of the encircling channels by dust is a deficiency of the head.

Card 1/1 1. Open hearth furnaces--Design

AUTHOR: Isupov, V. F., Engineer

133-58-4-40/40

TITLE: On the Serov Metallurgical Combine (Na Serovskom metallurgicheskome kombinat)

PERIODICAL: Stal', 1958, Nr 4, p 383 (USSR)

ABSTRACT: Increasing the durability of parts of equipment by sulphidisation. The composition of the sulphidising bath: sodium sulphide 100% (bath temperature 170-200°C) or caustic soda 32%, sodium sulphate 18%, sodium chloride 30% and hypo-sulphate 20% (bath temperature 550-570°C). In both cases after sulphidising, the parts are washed in hot water and treated for 30 minutes in oil at 60°C. The above treatment on average increased the service life of parts (submitted to wear) by a factor of four.

1. Metals--Mechanical properties
2. Sulfur--Applications

Card 1/1

AUTHOR: Isupov, V. F., Engineer 133-58-5-6/31

TITLE: At the Serovskiy Metallurgical Combine (Na Serovskom  
metallurgicheskoy kombinat)

PERIODICAL: Stal', 1958, Nr 5, pp 403-404 (USSR)

ABSTRACT: The production of sinter of a basicity 1.0. On increasing the basicity of sinter from 0.7 to 1.0 the output of the strand increased by 6%, the coefficient of utilisation of working volume of blast furnaces improved by 3% and the coke rate decreased by 3% (approximately 45% of sinter in the blast furnace burden). Operation of a small blast furnace on high top pressure. On transfer of a small furnace (volume 204 m<sup>3</sup>) on high top pressure operation (0.45 atm), the output increased by 4% and the coke rate decreased by 5%. It was found that in order to maintain normal operation a more uniform burden was necessary. In order to alleviate the increase in the wear of lining tuyeres were pushed further into the hearth (from 250 to 350 mm). Smelting of low manganese pig and its use for the production of quality steels. An investigation had shown that on complete removal of manganese ore from the blast furnace burden: a) the output increased by 5 to 5.5%, the coke rate decreased by 5 to 6%

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and the cost of pig iron decreased by 22 roubles (at present pig iron containing 0.5 to 0.6% Mn is being produced); b) there was no decrease in the pig iron quality; c) there were no difficulties in the production of steel by the scrap ore process, only the consumption of ferromanganese increased by 1.5 kg/t; d) some deterioration of the desulphurisation of metal during the melting period was observed, so that low-manganese should contain less sulphur; e) there was no deterioration in the quality of steel produced. Desulphurisation of pig iron outside blast furnaces. The desulphurisation of pig iron in the ladle by blowing in a mixture of lime with 3% of aluminium powder. At a concentration of the desulphurising mixture of 20 kg/m<sup>3</sup> the sulphur content in pig can be decreased by 30-50%. Some improvements in design of the blowing equipment are being carried out in order to increase the concentration of the desulphurising mixture to 30 kg/m<sup>3</sup> and higher.

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SOV/133-59-5-26/31

AUTHOR: Isupov, V.F., Engineer

TITLE: At the Metallurgical Combine imeni Serov (Na metallurgicheskoy kombinat im. Serova)

PERIODICAL: Stal', 1959, Nr 5, p 461 (USSR)

ABSTRACT: 1) A decrease in rejects of ball-bearing steel during controlling macrostructure. A sharp increase in the proportion of rejects due to "shrinkage" observed in the form of a small discontinuity of the metal in the centre of transverse templates (from forged semis 90 x 90 mm) was found to be not of shrinkage origin but formed during forging. By carrying out the control of macrostructure of finished products instead of forged semis, the proportions of rejects decreased from 5.3 to 1.8%.

2) Intensification of the annealing conditions of quality rolled products. By an improvement in the organisation and planning of the annealing program, an increase in the weight of charges and the introduction of two side bottom heating, the throughput of the shop was increased from 850 tons to 1 400 tons per month.

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3) A study and the removal of causes of the formation of transverse cracks during the heating of cold ingots of ball-bearing steel. It was found that charging of cold ingots into soaking pits at a temperature of 350-400 °C causes large thermal stresses during the initial heating period. With the introduction of charging the ingots in pits at a temperature not exceeding 200 °C the proportion of rejects due to cracks decreased from 6.5 to 0.1 - 0.3%.

4) A comparison of the control results for non-metallic inclusions in ball-bearing steel in forged and rolled specimens. On comparison of the results of the control of 900 specimens forged and rolled to the same dimensions, it was found that the character of the distribution of non-metallic inclusions was the same in both types of specimen. The work is being continued.

5) An improvement in the quality of hollow steel for drills and an improvement in the durability of the drills. By establishing strict temperature conditions (not specified) for thermal treatment of drills from steel U7,

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their durability has been doubled. The suitability of a number of other steels for the manufacture of drills was tested. The best results were obtained with steels 55S2 (on average 60 m of borehole) and 40KhN (99 m of borehole). By improvements in the design of the drills, their durability was further increased from steel 55S2 by a factor of 1.5 and from steel 40KhN by a factor of 2. Work-hardening of steel 55S2 with roller improved the durability of the drills to 130 m of borehole.

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AUTHOR: Isupov V. F. Engineer

133-58-5-27/31

TITLE: At the Serovskiy Metallurgical Combine (Na Serovskom metallurgicheskoy kombinat)

PERIODICAL: Stal', 1958, Nr 5, p 468 (USSR)

ABSTRACT: 1. Cooling of semis. In order to facilitate the handling of semis in cooling pits (to prevent the formation of flakes), the possibility of cooling of semis from some steels in air was studied. It was found that ball bearing steel made in an acid furnace is very little flake sensitive and can be cooled in air; flakes in semis of flake sensitive steels (40KhN, 35KhSA etc.) are welded during subsequent rolling providing the degree of total subsequent reduction is not less than 18%. Therefore, semis for rolling on the mill 320 could be cooled in air.

2. Annealing of ball bearing steel. By systematic study of heat treatment of the above steel in rods the total annealing time (structural annealing before drawing) was reduced from 46 hours to 12 hours. This was obtained by improvements in the efficiency of annealing furnace, increase speed of heating metal from 50-100°C/hr to

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350-400°C/hr, increase in soaking temperature from 790°C to 810°C and decrease in cooling time for a charge of 9-10 ton from 13 to 5 hours (during cooling an isothermal soaking at 720°C for 1-2 hours is carried out). The duration of final annealing (after drawing) was shortened from 30 hours to 12 hours, by increasing the rate of heating of the charge, increasing the annealing temperature from 720 to 730°C to 780°C.

3. Thermal treatment of semis from steel 30KhGSA. Many semis from this steel of 150 x 250 mm in diameter showed low plastic properties. This was found to be due to structural non-uniformity. A preliminary diffusion annealing at 900 to 1100°C improves plastic properties of this steel.

4. Thermal treatment of semis from Steel 45. In order to obtain semis of this steel with properties corresponding to TU-2333-49 an investigation was carried out which indicated that normalisation of semis by heating to 850°C and cooling outside the furnace using blowing ventilators secures the required properties.

Card 2/3 5. The control of the microstructure and hardness of metal

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after annealing using a coercimeter. For the control of hardness, microstructure and depth of decarburised layer in annealed ball bearing steel a coercimeter was successfully applied.

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AUTHOR: Isupov, v.F., Engineer

SOV/133-58-6-12/33

TITLE: On the Serov Metallurgical Combine (Na Serovskom metallurgicheskome kombinat)

PERIODICAL: Stal', 1958, Nr 6, pp 517 - 518 (USSR).

ABSTRACT: 1) A new technology of smelting steel for charging into an acid furnace.

The main difficulty encountered in smelting steel in basic furnaces for charging into acid furnaces was the removal of sulphur (the content of which was already very low: from 0.02 to 0.015%). The method developed improved the throughput of basic furnaces. It consisted of: a) using limestone instead of lime during the making of slag. The evolution of CO<sub>2</sub> causes stirring thus improving the rate of desulphurisation.

This shortened the refining period by 48 min; b) tapping steel with an increased sulphur content (about 0.02%) and subsequent desulphurisation in ladle with a mixture of soda (9%) crushed lime (76%) and crushed spar (15%) which is shovelled into the ladle under the stream of steel during tapping. This decreases the content of sulphur to 0.005 - 0.006%. The consumption of the mixture 10-11 kg/ton of metal. This shortens the refining time by 1 hour 6 min; c) addition

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of ferromanganese (to obtain 0.8 - 0.9% Mn in the metal) into the ladle instead of into the furnace as was practised before. This decreased the manganese losses by 25%. In addition, a decrease in the steel temperature decreased the consumption of ingot moulds.

2) The development and mastering of casting 5-ton ingots. In order to increase the output of the mill 850 (by 7 - 9%) and the output of the casting pit, the weight of the ingot was increased from 4.5 to 5 tons. Due to limitations imposed by the size of the soaking pits and the mill, only the height of the ingot could be increased. The quality of metal did not deteriorate but the formation of transverse cracks during rolling became more frequent.

3) Casting of steel with vibrations. In order to improve the density of ingots and decrease the amount of non-metallic inclusions, an experimental casting of 4.1 and 2.9 ton ingots with vibrations during the crystallization of ingots was carried out. Number of vibrations, 1 000, their amplitude 1 - 2.5 mm. The use of vibrations, mainly to ball bearing steel ingots did not give positive results.

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4) The use of exothermic mixtures during the casting of steel.

A number of exothermic mixtures (the composition given) were tested. Some decrease in the depth of the shrinkage was obtained (2%). The experiments are being continued.

1. Metallurgy--USSR 2. Steel castings--Production 3. Furnaces--Performance

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AUTHOR: Isupov, V.F., Engineer

SOV/133-58-6-22/33

TITLE: In the ~~Serovsk~~ Metallurgical Combine (Na Serovskom metallurgicheskome kombinat)

PERIODICAL: Stal', 1958, Nr 6, p 548 (USSR).

ABSTRACT: 1) Some new methods of production of calibrated (cold drawn) steel. In order to decrease labour and metal losses during cold drawing of rolled steel, methods of production of rods on a roller mill and by hot drawing were tested. Rolling on a roller mill gave satisfactory results so that the method will be studied further. An experimental heating of rods for hot drawing with a 60 kW high-frequency generator and calculations indicated that a 500 kW generator would be necessary.

2) The determination of load on drawing. A formula is proposed (given in the text) which for constant drawing conditions (angle of drawing  $\alpha = 10 - 12^\circ$  and  $\Delta h/d \approx 0.1$ ) obtains a simple form of  $P = \Delta h d H_B$ , where

$\Delta h$  - reduction, mm and  $d$  - diameter of the die, mm.

3) Lubrication on drawing.

The use of sulphide alkali (no details) instead of solidal was found to be advantageous, namely: a) a 15% decrease in drawing

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load; b) dry surface of drawn metal; c) cleaner working conditions and d) the process of lubrication is easy to mechanise (using compressed air).

4) Studies of causes of formation of surface defects on rolled products using radio-active atoms.

The influence of various defects of ingots on the formation and nature of defects in rolled products was studied using

radio-active  $\text{Ag}^{110}\text{NO}_3$ . The defect in an ingot was marked by drilling holes dia. 17 mm and 40-50 mm deep, on both its sides into which balls made by using an aqueous solution of the isotope (no details) were placed and covered with a steel stopper welded on top. In this way the behaviour of the defect could be followed in the course of rolling.

1. Steel--Processing 2. Rolling mills--Effectiveness 3. Mathematics  
Card 2/2 --Applications 4. Lubricants--Effectiveness 5. Metals--Surface  
properties 6. Silver isotopes (Radioactive)--Applications

SOV/133-59-6-8/41

AUTHOR: Isupov, V.F., Engineer

TITLE: At the Metallurgical Combine Imeni Serov (Na metallurgicheskoy kombinat im. Serova)

PERIODICAL: Stal', 1959, Nr 6, p 502 (USSR)

ABSTRACT: 1. Desulphurisation of pig iron outside the blast furnace.  
Continuation of the work on desulphurisation of pig iron by blowing with lime gave the following results:  
(a) on blowing in lime alone using air, the average degree of desulphurisation amounts to 16% and with an addition to lime of 3% of aluminium 30 - 40%;  
(b) on blowing lime with nitrogen the degree of desulphurisation decreases to 40% and on the addition of aluminium to lime to 50 - 78%. Other methods of desulphurisation tested: 1) Lime is crushed in a shaft mill (for brown coal) and is blown from the mill into pig iron during the filling of the ladle, so that the tube is always immersed 400 - 500 mm below the surface of the metal. The method was found to be inconvenient in operation. No results on the degree of

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desulphurisation obtained are given. 2) The Desulphurising mixture is sucked in by a stream of pig iron on the principle of an ejector, for which purpose the pig is poured from one ladle into another through a special funnel: the degree of desulphurisation obtained is 19%. 3) On tapping, pig iron is passed into a funnel situated over a transfer ladle, the diameter of the outlet of which is so calculated that a depression is formed on the surface of the iron due to a whirlpool. Into this depression the lime is dropped which is sucked in by the stream. The method is very simple, the degree of desulphurisation obtained reaches 50%. The work is being continued.

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SOV/133-59-6-28/41

AUTHOR: Isupov, V.F., Engineer

TITLE: ~~At the Metallurgical Combine imeni Serov~~  
(Na metallurgicheskoy kombinatsii im. Serova)

PERIODICAL: Stal', 1959, Nr 6, p 552 (USSR)

ABSTRACT: 1) The removal of scale from the surface of rolled products by its reduction with sodium hydride. An installation for pickling with sodium hydride is being erected.

2) Changes in the technology of treatment of second quality rods from ball bearing steel. Second quality rods (with surface defects) are ground in one pass, sorted using a magnetic defectoscope into 1st and second quality. Rods of the second quality are reground etc. Rods with defects after 3 passes are sent out as second quality.

3) Thermoelectric method of control of rolled products for shrinkage defects (in co-operation with the Ural Iron and Steel Institute). As the thermoelectric force of steel depends on the contents of C, Si, Mn, S and other elements which usually segregate during "shrinkage"

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observed during macrocontrol, measurement of the force in the centre of the cross-section of rolled billets and on the periphery should give different results if "shrinkage" is present. It is planned to introduce this method of control of all rolled metal with a simultaneous decrease in head crops of ingots.

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AUTHOR: Isupov, V.F., Engineer

SOV/133-59-6-38/41

TITLE: At the Metallurgical Combine imeni Serov  
(Na metallurgicheskoy kombinat im. Serova)

PERIODICAL: Stal', 1959, Nr 6, p 573 (USSR)

ABSTRACT: 1. An improvement of heating billets in a continuous furnace. On transfer of the furnace to gas from brown coal its operation deteriorated due to air leakages. The suction at the discharge door was decreased by changing the angles of the burners in the soaking zone. This made the heating of billets more uniform along their whole length and improved the productivity of the furnace.  
2. An improvement in the thermotechnical operation of open hearth furnaces (in co-operation with the Ural Polytechnical Institute). In order to improve the utilisation of sulphurous oil in open hearth furnaces, a method of its combustion with a preliminary gasification in vertical (previously gas) flues was tested on a 25 ton furnace. With a calorific value of the oil gas of 1250 - 1300 cal/nm<sup>3</sup> ( $\alpha = 0.3$ ) the indices of furnace operation improved in comparison

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with gas-oil firing. The mean duration of the heat decreased by 1.8 - 2.94 hours and the consumption of conventional fuel by 47 kg/ton. The investigation is being continued on another furnace.

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SOV/133-59-9-25/31

AUTHORS: Isupov, V.F., Smirnova, O.A. and Saar, T.M.

TITLE: Causes of the Formation of Surface Defects on Billets and Finished Products

PERIODICAL: Stal', 1959, Nr 9, pp 842-845 (USSR)

ABSTRACT: An investigation of the influence of surface defects in ingots and billets on the surface quality of finished products was investigated using radioactive indicators. The method consisted of marking surface defects in ingots and billets with radioactive  $Ag^{110}$ . The marking was done by drilling holes 16 to 18 mm in diameter and 40 to 50 mm deep on two sides of the defect in the direction of rolling and placing 0.10 - 0.08 mCurie of the radioactive marker (a mixture of an aqueous solution of  $Ag^{110}NO_3$  with dextrin and charcoal made into pellets and dried) and closing the hole with a steel stopper, electrically welded on the surface. After rolling the ingots into blooms and billets, the position of the markers was determined and transverse templates were cut out from the section between the markers for studying the microstructure and the depth of penetration of the defects. A similar procedure was adopted for marking

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SOV/133-59-9-25/31

**Causes of the Formation of Surface Defects on Billets and Finished Products**

defects (of rolling origin) in billets and their subsequent investigation in finished products. It was found that "influxes" 15 to 18 mm high and external crust bends in the ingots form defects in the form of films or cracks with ragged edges in blooms and finished products. Transverse cracks in the ingots are transformed in billets into large single cracks. Cracks in billets formed due to the overheating of ingots are usually situated in groups on the edges and possess a  $\wedge$  shape, remaining in the finished products where they occasionally obtain the form of intermittent hair cracks. Examples of the microstructure of some defects are shown in Figures 1 to 6. There are 6 figures.

ASSOCIATION: Metallurgicheskiy kombinat im. Serova (Metallurgical Combine imeni Serov)

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SOV/130-60-3-13/23

AUTHOR: Isupov, V. F.

TITLE: Production of Standard Size Ball Bearing Steel Rods

PERIODICAL: Metallurg, 1960, Nr 3, pp 22-24 (USSR)

ABSTRACT: Ball bearing steel was produced for the first time in an electric furnace at "Elektrostal'" Plant (zavod "Elektrostal'") in 1932. In 1938, ball bearing steel was produced in the acid open hearth furnace of Combine imeni A. K. Serov (Kombinat imeni A. K. Serova). Manufacturing process of sized rods consists of: (1) black annealing of intermediate rolled product; (2) microstructure, hardness, and decauburization tests; (3) descaling of intermediate products in tumbler; (4) straightening; (5) sharpening of rod ends; (6) pickling in sulfuric acid; (7) scarfing of rods rolled from the end parts of the strip only; (8) post-scarfing pickling; (9) drawing; (10) straightening; (11) bright annealing; (12) hardness, microstructure, and decarburization tests; (13) straightening; (14) assorting

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Production of Standard Size Ball  
Bearing Steel Rods

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by means of magnetic defectoscope; (15) trimming;  
(16) spark test; (17) packing, weighing, and storing;  
(18) transport. A series of tests was conducted to  
improve quality. It was determined that: (1) The  
most frequent surface defects of intermediate products  
are caused by rolling in worn passes of steel rolls on  
roughing stand of 320 mm mill. Chill cast iron rolls  
modified by magnesium were endowed with high durability  
which resulted in high surface quality of intermediate  
product. (2) The rods rolled from the end part of the  
strip were of poorest quality; consequently, they are  
separated and carefully assorted and scarfed after  
pickling. (3) The following heating rates were found  
to be optimal: heating at temperature above 900°C for  
max 30 min in oxidizing atmosphere (free oxygen content  
in flue gas, 5 to 7%); temperature at delivery window:  
700°C max. These heating rates result in such negli-  
gible decarburization that no decarburization inspection  
is required. The rates of black and bright annealing are  
shown in Figs. 1 and 2, respectively.

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Production of Standard Size Ball  
Bearing Steel Rods

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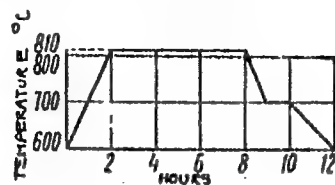


Fig. 1. Rates of black annealing of ball bearing steel.

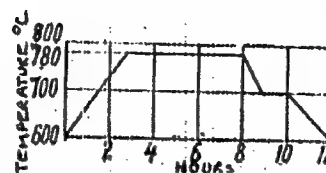


Fig. 2. Rates of bright (recrystallization) annealing of ball bearing steel in tubes.

Rods with surface defects identified by defectoscopic inspection are ground on centerless grinding machines. 0.15 to 0.20 mm of metal (on diameter) is removed during grinding. Subsequent inspection serves to eliminate rods with remaining defects which are ground once more. Rods with defects not removed by secondary grinding are rated as second-grade products. There are 3 figures.

ASSOCIATION: Metallurgical Combine imeni A. K. Serov

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ISUPOV, V.F.

Pickling rod material without spacers. Metallurg 6 no. 1:27  
Ja '61. (MIRA 14:1)

1. Nachal'nik tsentral'noy zavodskoy laboratorii metallurbicheskogo  
kombinata im. A.K. Serova.  
(Metals—Pickling)



REVEETSOV, V.P.; ABRAMOV, B.A.; NAGOVITSYN, D.F.; LEBEDEV, A.A.;  
OSIPOV, G.V.; TANTSUYEV, V.V.; ISUPOV, V.F.; ZAYTSEVA, Ye.I.

Quality of manganese ferroalloys from ores of the Polunochnoye  
deposit. Stal' 21 no.9:806-809 S. '61. (MIRA 14:9)

1. Institut metallurgii Ural'skogo filiala Akademii nauk;  
Nizhne-Tagil'skiy metallurgicheskiy kombinat i Kombinat im.  
Serova.

(Ferromanganese) (Polunochnoye region--Manganese ores)

ISUPOV, V.F., insh.

At the A.K. Serov's Metallurgical Combine. Stal' 21 no.9:  
790-791,809-810,829,845,856 S '61.

(MIRA 14:9)

(Serov-Metallurgical plants)

BRON, V.A.; KHOROSHAVIN, L.B.; ISUPOV, V.F.; KLYUKINA, L.Z.

Lining the forked steel pouring spouts of open-hearth  
furnaces with refractory concrete. Ogneupory 26 no.6:265-  
269 '61. (MIRA 14:7)

1. Vostochnyy institut ogneuporov (for Bron, Khoroshavin).
2. Metallurgicheskiy kombinat imeni Serova (for Isupov,  
Klyukina).

(Open-hearth furnaces—Equipment and supplies)  
(Refractory concrete)

ISUPOV, Vasilii Fedorovich; SLAVKIN, Veriamin solomonovich;  
VLADIMIROV, Yu.V., red.izd-va; ISLENT'YEVA, P.G., tekhn.  
red.

[Production of sized steel; generalization of progressive  
practices] Proizvodstvo kalibrovannoi stali; obobshchenie  
peredovogo opyta. Moskva, Gos. nauchno-tekhn.izd-vo lit-ry  
po chernoi i tsvetnoi metallurgii, 1962. 196 p.

(MIRA 15:3)

(Metalwork)

PETROV, K.M.; DYAKONOV, V.I.; FADEYEV, I.G.; SEMENENKO, P.P.; KRYUKOV, L.G.;  
Prinimali uchastiye: PASTUKHOV, A.I.; SHISHKINA, N.I.;  
PAZDNIKOVA, T.S.; CHIRKOVA, S.N.; KAREL'SKAYA, T.A.; LOPTEV, A.A.;  
DZEMYAN, S.K.; ISUPOV, V.F.; BELYAKOV, A.I.; GUDOV, V.I.;  
SUKHMAN, L.Ya.; SLESAREV, S.G.; GOLOVANOV, M.M.; GLAGOLENKO, V.V.;  
ISUPOVA, T.A.; ZYABLITSEVA, M.A.; KAMENSKAYA, G.A.; POMUKHIN, M.G.;  
UTKINA, V.A.; MANEVICH, L.G.

Vacuum treatment of alloyed open hearth steel. Stal' 22 no.2:113-  
117 F '62. (MIRA 15:2)

1. Ural'skiy nauchno-issledovatel'skiy institut chernykh metallov  
(for Pastukhov, Shishkina, Pazdnikova, Chirkova, Karel'skaya,  
Loptev, Dzemyan). 2. Metallurgicheskiy kombinat im. A.K. Serova  
(for Isupov, Belyakov, Gudov, Sukhman, Slesarev, Golovanov,  
Glagolenko, Isupova, Zyablitseva, Kamenskaya). 3. 6-y Gosudar-  
stvennyy podshipnikovyy zavod (for Pomukhin, Utkina, Manevich).  
(Steel—Metallurgy)  
(Vacuum metallurgy)

GOL'DSHTEYN, Mikhail Izrallevich; ISUPOV, V.F., retsenzent; ROMANOV,  
A.A., red.; BUR'KOV, M.M., red. izd-va; MAL'KOVA, N.T.,  
tekhn. red.

[Using radioactive isotopes to study steel ingots] Prime-  
nenie radioaktivnykh izotopov dlia izucheniia stal'nogo  
slitka. Moskva, Metallurgizdat, 1963. 183 p.

(Steel--Analysis)

(MIRA 16:5)

(Radioisotopes--Industrial applications)

ISUPOV, V.F.; BELYAKOV, A.I.

New developments in research. *Stal'* 23 no.8:695 Ag '63.  
(Blast furnaces) (MIRA 16:9)

ISUPOV, V.F.; BELYAKOV, A.I.

New developments in research. Stal' 23 no.8:737 Ag '63.  
(Rolling (Metalwork)) (MIRA 16:9)



ISUPOV, V.F.; BELYAKOV, A.I.

New developments in research. Stal' 23 no.8:761 Ag '63.  
(Metallurgical furnaces) (MIRA 16:9)

ISUPOV, V.F.; BELYAKOV, A.I.

New developments in research. Stal' 23 no.7:671 J1 '63.  
(MIRA 16:9)  
(Annealing of metals))(Drawing (Metalwork))

ISUPOV, V.F.

L 20086-65 EWT(m)/EWP(t)/EWP(b) JD/MLK

ACCESSION NR AM1049548

NOV EXPLOITATION

9/ 47/

Prokhorenko, Kim Kondrat'evich; Verkhovtsev, Emil' Vladimirovich; Rakuzenko, Sergey Panteleyevich; Vasil'yev, Nikolay Yeforovich; Ishchuk, Nikolay Yakovlevich; Fadeyev, Ivan Gavrilovich; Kozov, Viktor Aleksandrovich; Serezenko, Petr Pimenovich; Isurov, Vasily Fedorovich

Melting and pouring of quality steels (Vyplavka i razlivka kachestvennykh staley), Moscow, Izd-vo "Metallurgiya", 1964, 200 p. illus., biblio. Errata slip inserted. 2,450 copies printed.

TOPIC TAGS: quality steel, steel teeming, steel melting, metallurgical furnace

PURPOSE AND COVERAGE: This book reports on the results of work on improving the technology of melting, deoxidation, and teeming of quality steels in electric arc, acid and basic open-hearth furnaces conducted at the Izhevsk Metallurgical Plant and the Sverdlovsk Metallurgical Combine. Great attention is given to description of the measures to reduce contamination with nonmetallic inclusions of ball bearing and structural steels, presentation of material on the effectiveness of teeming steel under a liquid slag, and to increasing the output of sound metal from the ingots due to the use of various methods of heating their hot top. The results of using rare earth elements for deoxidation and modification of steel are given.

Card 1/2

L 20086-65

ACCESSION NR AM049548

The book is intended for engineers and technicians working in the production of quality steels and can also be useful to students of higher educational institutions.

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Ch. IV. Steel teeming -- 102

Ch. V. Teeming steel under a protective layer -- 129

Ch. VI. New methods of inspecting the macrostructure of metal -- 173

Ch. VII. Experience in the use of rare earth elements to improve the quality of steels -- 182

SUB CODE: MM

OTHER: 003

SUBMITTED: 25Apr64

NR REF SOV: OM

Cord 2/2

51384-65 EWT(n)/EWT(t)/EWT(v) JD

ACCESSION NR: AP5010907

08/0286/65/000/001/0095/0096

AUTHOR: Nosov, V. A.; Ishchuk, N. Ya.; Isupov, V. F.; Prokhorenko,  
K. K.; Sukhman, L. Ya.; Glagolenko, V. V.

TITLE: Exothermic mixture for producing synthetic slag. Class 1, No. 6978

SOURCE: Byulleten izobreteniy i tovarnykh znakov, no. 7, 1965, 95-96

TOPIC TAGS: synthetic slag, synthetic slag mixture

ABSTRACT: This Author Certificate introduces an exothermic slag-forming mixture which is added into ingot molds. To improve the surface of ingots, the mixture consists of 2.0--2.5% magnesium powder, 7--12% calcium-silicon powder, 13--18% aluminum powder, 7--12%



KEYS, N.V.; KOMISSAROV, A.I.; ISUPOV, V.F., inzh.; FADYEYEV, I.G., inzh.;  
NOSOV, V.A., inzh.

New developments in research. Stal' 25 no.7:614-615 J1 '65. (MIRA 18:7)

ISUPOV, V.F., inzh.; MASHURA, G.P., inzh.

New developments in research. Stal' 25 no.7:6/2 J1 '65. (MIRA 18:7)



ISUPOV, V.F., inzh.; MASHURA, G.P., inzh.; NOSOV, V.A., inzh.

New developments in research. Stal' 25 no.7:665 J1 '65. (MIRA 18:7)

ISUPOV, V.F., inzh.; SMETANIN, M.V., inzh.

New developments in research. Stal' 25 no.10:919 0 '65.  
(MIRA 18:11)

L 27615-66 EWI(m)/ENA(d)/ENP(t)/ETI IJP(c) JD  
ACC NR: AP6018478 SOURCE CODE: UR/0131/66/000/003/0219/0223

AUTHOR: Nosov, V. A. (Engineer); Ishbuhk N. Ya. (Candidate of technical sciences);  
Isupov, V. F. (Engineer); Prokhorenko, K. K. (Candidate of technical sciences);  
Sukhman, L. Ya. (Engineer); Glagolanko, V. V. (Engineer); Solyanikov, B. G. (Engineer)

ORG: Metallurgical Combine im. A.K. Serov (Metallurgicheskiy kombinat); Institute of  
Casting Problems, AN SSSR (Institut problem lit'ya AN SSSR)

TITLE: Pouring steel under molten slag produced by combustion of an exothermic  
mixture

SOURCE: Stal', no. 3, 1966, 219-223

TOPIC TAGS: cast steel, slag, metal pipe/38KhMYuA cast steel, 12Kh1MF cast steel,  
20F cast steel, 15 GS cast steel, 38KhA cast steel, 38KhS cast steel, 40-45 KhN cast  
steel, ShKh15 cast steel, 35KhGSA cast steel, 55S2 cast steel, 60S2 cast steel,  
38KhGS cast steel

ABSTRACT: The paper is a report on a method developed in 1962 at the Metal-  
lurgical Combine imeni A. K. Serov for pouring steel under molten slag produced  
directly in the molds by combustion of an exothermic mixture. The first type  
of steel cast by this method was 38KhMYuA. The method is presently being used  
for pouring the following types of steel: 12Kh1MF, 20F, 15GS, 38KhA, 38KhS,  
40-45KhN, ShKh15, 35KhGSA, 55S2, 60S2, and 38KhGS. The exothermic mixture has  
the following composition (wt %): magnesium powder -- 2.5; aluminum powder --

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UDC: 669.18.046.558.7

L 27615-66

ACC NR: AP6018478

4.5; sodium nitrate — 11; oxidized manganese ore — 20; fluorite — 20; impure sodium disilicate — 20; blast-furnace slag — 12. It is shown that the production of liquid slag directly in the molds by combustion of this exothermic mixture gives the simplest means for casting under molten slag in mass production conditions. Scrap of finished products (blanks) are considerably reduced for surface defects when steel is poured under slag (particularly for 38KhMYuA steel where rejects are reduced by a factor of 32.5). This pouring method also reduces the work required for trimming blanks which increases the yield of bar stock for 38Kh15 and 38KhS steel by 10 and 15% respectively. When metal poured under slag is used for pipe production, the pierceability of the blanks is improved and mechanical damage to the outside and inside surfaces is sharply reduced. A. A. Chepurnova participated in the work. Orig art. has 5 tables and 3 figures. /JPRS/

SUB CODE: 11, 13 / SUBM DATE: none / ORIG REF: 003 /

Card

2/2

CV

ISUPOV, V.G., master

Improvements indicated by practice in repairing measuring instruments  
in diesel locomotives. Elek. i tepl. tiaga 2 no.7:22-24 JI '58.  
(MIRA 11:7)

1. Elektro-teploizmeritel'naya laboratoriya depo Petropavlovsk.  
(Diesel locomotives--Electric equipment--Maintenance and repair)

ISUPOV, V.I.; MASHURA, G.P.; SADOVSKIY, V.D.

Development of temper brittleness in steel drawing. Trudy  
Inst. fiz. met. no.18:99-105 '56. (MIRA 10:2)

(Steel--brittleness) (Drawing (Metalwork))

L 28844-66 EPF(n)-2/ENT(m)/ETC(f)/ENG(m)/EMP(t)/ETI TJP(c) WW/JD/WE

ACC NR: AP6013738 SOURCE CODE: UR/0089/66/020/004/0356/0357

AUTHOR: Saykov, Yu. P.; Isupov, V. K.

ORG: none

TITLE: Accumulation of <sup>1</sup>hydrogen peroxide in the water of the primary loop of the VVR-M reactor <sup>19</sup> <sup>21</sup>

SOURCE: Atomnaya energiya, v. 20, no. 4, 1966, 356-357

hydrogen peroxide, nuclear reactor power,  
TOPIC TAGS: nuclear research reactor, water cooled nuclear reactor,  
nuclear reactor material, corrosion /VVR-M nuclear research reactor

ABSTRACT: The authors present in a brief form the results of their investigations of the formation of hydrogen peroxide causing the corrosion in the VVR-M reactor. The amount of hydrogen peroxide accumulated in the water of the primary loop was measured by polarographic method for power capacities of 7,5, 8, 9, 10, and 12 Mw. The results of measurements for various reactor operation time (up to 100 hrs) are plotted in a graph showing a sharp increase in accumulation.  
Card 1/2

UDC: 541.15.661.491.621.039.5

L 28844-66

ACC NR: AP6013738

tion during the first 20 or 25 hours and no increase after 30 hours. Another graph shows a linear relationship between the hydrogen peroxide accumulation and the increase in reactor power. The variation in deaeration conditions produces little effect on the removal of hydrogen from the water of the primary loop. It is also graphically shown that the hydrogen peroxide is rapidly dissolved in three to four hours after the reactor shut-down, reaching its minimum concentration in 10 to 15 hours. Then an increase in the minimum concentration is observed due to the action of long-lived isotopes. Orig. art. has: 4 graphs.

SUB CODE: 18 / SUBM DATE: 19 June 65 / ORIG REF: 004 / OTH REF: 002

Card 2/2



RUBANOVICH, Vladimir Yakovlevich; ISUPOV, Vladimir Semenovich;  
PASHCHINSKAYA, G., red.; GUTMAN, A., tekhn. red.

Sovetsk. Kaliningrad, Kaliningradskoe knizhnoe izd-vo,  
1961. 61 p. (MIFA 16:1)  
(Sovetsk (Kaliningrad Province))

Isupov, V.T.

KAPELINSKIY, Yu.N.; POLYANIN, D.V.; MENZHINSKIY, Ye.A.; IVANOV, I.D.;  
 SERGHEYEV, Yu.A.; KOSTYUKHIN, D.I.; DUDUKIN, A.N.; IVANOV, A.S.;  
 FINOGENOV, V.P.; ZAKHMATOV, M.I.; SOLODKIN, R.G.; DUSHEN'KIN, V.N.;  
 BOGDANOV, O.S.; SEROVA, L.V.; GONCHAROV, A.N.; KAREKHIN, G.I.;  
 LYUBSKIY, M.S.; PUCHIK, Ye.P.; SEROVA, L.V.; KAMENSKIY, N.N.;  
 SABEL'NIKOV, L.V.; FEDOROV, B.A.; GERCHIKOVA, I.N.; KARAVAYEV, A.P.;  
 KARPOV, L.N.; SHIPOV, Yu.P.; VLADIMIRSKIY, L.A.; KUTSENKOV, A.A.;  
 RYABININA, E.D.; ANAN'YEV, P.G.; ROGOV, V.V.; BELOSHAPKIN, D.K.;  
 SEYFUL'MULYUKOV, A.M.; PARFENOV, A.Ya.; SMIRNOV, V.P.; ALEKSEYEV,  
 A.F.; SHIL'DERUT, V.A.; CHURAKOV, V.P.; BORISENKO, A.P.; ISUPOV, V.T.;  
 ORLOVA, N.V., red.; GORYUNOVA, V.P., red.; BELOSHAPKIN, D.K., red.;  
 GEORGIYEV, Ye.S., red.; KOSAREV, Ye.A., red.; KOSTYUKHIN, D.I., red.;  
 MAYOROV, B.V., red.; PANKIN, M.S., red.; PICHUGIN, B.M., red.;  
 POLYANIN, D.V., red.; SOLODKIN, R.G., red.; UFIMOV, I.S., red.;  
 EKHIN, P., red.; SMIRNOV, G., tekhn.red.

[Economy of capitalist countries in 1957] Ekonomika kapitalisti-  
 cheskikh strah v 1957 godu. Pod red. M.V.Orlova, IU.N.Kapelinskogo  
 i V.P.Gorinnova. Moskva, Izd-vo sotsial'no-ekon.lit-ry, 1958.  
 686 p. (MIRA 12:2)

1. Moscow. Nauchno-issledovatel'skiy kon'yunktunnyy institut.  
 (Economic conditions)

KHACHATUROV, T.S., red.; DAN'SHINA, V.N.[translator]; ZOTOV, B.D.  
[translator]; ISUPOV, V.T.[translator]; MENIKER, V.D.[translator];  
TEREKHOV, V.F.[translator]; SHAGALOV, G.L.[translator]; KORMNOV,  
Yu.F., nauchnyy red.; ZAYTSEV, N.F., red.; KHOMYAKOV, A.D., tekhn.  
red.

[Problems in the economic efficiency of capital investments] Vopro-  
sy ekonomicheskoi effektivnosti kapitalovlozhenii; sbornik statei.  
Pod red. i so vstup. stat'ei T.S.Khachaturova. Moskva, Izd-vo  
inostr. lit-ry, 1962. 276 p. (MIRA 15:12)

1. Chlen-korrespondent Akademii nauk SSSR (for Khachaturov).  
(Capital investments)

IOFFE, Ya.A.; ISUPOV, V.T.; POKATAYEV, Yu.N.; PODGORNOVA, V.,  
red.; MUKHIN, Yu., tekhn. red.

[Socialist and capitalist countries in figures; a brief  
statistical reference book] Strany sotsializma i kapita-  
lizma v tsifrakh; kratkii statisticheskii spravochnik.  
Moskva, Politizdat, 1963. 207 p. (MIRA 17:1)

ISUPOV, Yu.A.

Long-term turpentinin with chemical stimulation proves to be effective. Gidroliz. i lesokhim. 18 no.2:29-30 '65.

(MIRA 18:5)

1. Trest "Kirleszag".

ISUPOV, Yu.G.; GORUSTOVICH, A.M.; SARKISOV, G.M.

Pumping petroleum products from underground reservoirs. Transp. i  
khran. nefti i nefteprod. no.8:12-14 '65. (MIRA 18:9)

1. Nauchno-issledovatel'skiy institut po transportu i khraneniyu  
nefti i nefteproduktov.

ISUROV, Yu.G.; SVIRIDOV, V.P.

Device for discharging petroleum products from the lower part  
of tank cars. Transp. i khran. nefiti i nefteprod. no. 1:33-34  
'64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy institut po transportu i khraneniyu  
nefti i nefteproduktov.

ISUPOV, Yu.G.; KHAZIYEV, N.N.

Determining the optimal diameter of the inner well casing of an  
underground storage reservoir constructed in rock-salt sediments.  
Neft. khoz. 42 no.8:55-58 Ag '64. (MIRA 17:9)



ISUPOV, Yu.G.; KHAZYEV, N.N.

Testing reservoirs for the storage of petroleum products in  
rock-salt sediments. Transp. i khran. nefti i nefteprod. no.7:  
16-17 '64. (MIRA 17:8)

1. Nauchno-issledovatel'skiy institut po transportu i khraneniyu  
nefti i nefteproduktov.

SVIRIDOV, V.P.; ISUPOV, Yu.G.; SKOVORODNIKOV, Yu.A.; YUNTAYEV, V.G.

Device for heating high-viscosity petroleum products in tank cars.

Transp. i khran. nefiti i nefteprod. no.9:20-22 '64. (MIRA 17:10)

1. Nauchno-issledovatel'skiy institut po transportu i khraneniyu  
nefti i nefteproduktov.

ISUPOV, Yu.G.; KHAZIYEV, N.N.

Determining the temperature of petroleum products in underground storage by indirect measurements. Transp. i khran. nefiti i nefteprod. no.9:22-24 '64. (MIRA 17:10)

1. Nauchno-issledovatel'skiy institut po transportu i khraneniya nefiti i nefteproduktov.

KUL'MAN, Avgust Gustavovich; RUSAKOVA, V.N., red.; ISUPOVA, G.G.,  
red.

[Collection of problems in general chemistry] Sbornik zadach po obshchei khimii. Moskva, Vysshaya shkola, 1965. 231 p.  
(MIRA 18:11)

OSIPOV, Osip Aleksandrovich; MINKIN, Vladimir Isaakovich; ISUPOVA,  
G.G., red.

[Handbook on dipole moments] Spravochnik po dipol'nykh mo-  
mentam. Izd. 2., perer. i dop. Moskva, Vysshaya shkola,  
1965. 262 p. (MIRA 18:7)

GOZELOVA, L.Z.; ISUPOVA, I.K.

Improving the shops for the rectification of crude benzene.  
Koks i khim. no.11:53-57 '62. (MIRA 15:12)

1. Gosudarstvennyy institut po proyektirovaniyu predpriyatiy  
koksokhimicheskoy promyshlennosti.  
(Benzene) (Coke industry—By-products)

ISUPOVA, K.V.

Test tubes instead of mixers. Lab.delo no.4:23-25 Jy-Ag '55.  
(MLRA 8:8)

(TECHNOLOGY MEDICAL, apparatus and instruments,  
replacement of test mixers with test tubes)

ISUPOVA, L., inzh.

Vasilii Dudorov's brigade. Sel'stroy. 12 no.9:16-17 S '57.

(MIRA 10:10)

1. Inspektor Kirovskogo oblastnogo upravleniya sel'skogo khozyaystva.  
(Building)



p. 2

PHASE I BOOK EXPLOITATION

SOV/4118

Khimicheskaya zashchita organizma ot ioniziruyushchikh izlucheniye (Chemical Protection of the Organism From Ionizing Radiation ) Moscow, Atomizdat, 1960. 151 p. Errata slip inserted. 6,000 copies printed.

Ed. (Title page): V.S. Balabukh, Professor; Ed. (Inside book): A.I. Zavodchikova; Tech. Ed.: N.A. Vlasova.

**PURPOSE:** This book is intended for chemists doing research on means of chemical protection and on complexing agents, and for biologists and other specialists working on problems in radiobiology.

**COVERAGE:** This collection of articles reviews the present state of the problem of chemical protection from ionization radiation and contains experimental data on the synthesis and biological testing of the protective properties of a number of chemical compounds (the amino thiols and pyrimidine derivatives). Results of experimental investigation on the elimination of radioactive isotopes from the organism are presented and the characteristics of the state of certain radioactive isotopes in the blood and in bone tissue are noted.

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Chemical Protection of the Organism (Cont.)

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Attention is given to explaining the action mechanism of protective substances. The articles discuss in the light of certain radiobiological and biophysical hypotheses possible ways of protecting the biosubstructure from the injurious effects of ionizing radiation. The effectiveness of complexing agents which induce radioactive isotopes to combine and be eliminated from the organism is evaluated on the basis of physicochemical data and biological experiments. No personalities are mentioned. Soviet and non-Soviet sources follow each article.

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Razbitnaya, L.M., and V.S. Balabukha. Effect of Complexing Agents on the Character of Radioisotope Bonding in the Blood 125

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and Stability of Y<sup>91</sup> Bonding With Bone Tissue 130

Card 4/5

ISUPDVA, L.S.; YAKOVLEV, V.G.

Amount of nonprotein sulfhydryl groups in the liver and spleen  
of white rats irradiated with X rays with preliminary administration  
of protective doses of cysteine. Med. rad. 5 no.9:38-43 S '60.

(MIRA 13:12)

(CYSTEINE)  
(MERCAPTO COMPOUNDS)

(RADIATION—PHYSIOLOGICAL EFFECT)  
(LIVER) (SPLEEN)

ISUPOVA, L.S.; BALABUKHA, V.S.

Prevention of depolymerization in the DNA liver of the irradiated  
rats by means of substances offering radiation protection. Med.  
rad. 6 no.8:36-41 Ag '61. (MIRA 14:8)  
(NUCLEIC ACIDS) (LIVER) (RADIATION PROTECTION)

AID Nr. 996-5 24 June

PREVENTION OF RADIATION-INDUCED DEPOLYMERIZATION OF DNA  
OF RAT LIVER BY MEANS OF PROPYL GALLATE AND 5-METHOXY-  
TRYPTAMINE (USSR)

Isupova, L. S., and V. S. Balabukha. Radiobiologiya, v. 3, no. 2, 1963,  
256-258. S/205/63/003/002/015/024

Male white rats weighing 180 to 220 g were subjected to a 650-r dose of x-irradiation from an PYM-3 apparatus. Four series of experiments were conducted involving healthy rats, irradiated rats, rats irradiated after the administration of propylgallate, and rats irradiated after the administration of 5-methoxytryptamine. The rats were sacrificed 6, 24, and 72 hrs after exposure. The structural viscosity of the aqueous DNA solutions (0.2%) from rat liver was determined by the method of D. L. Rubinshteyn and M. P. Petrova. With intraperitoneal injections of propylgallate (50 mg/kg) 15 min before exposure the viscosity of the DNA solutions remained normal for a prolonged period. This indicates that depolymerization of DNA in an irradiated

Card 1/2

AID Nr. 996-5 24 June

PREVENTION OF RADIATION-INDUCED [Cont'd]

8/205/63/003/002/015/024

organism as well as in experiments *in vitro* proceeds as a free-radical reaction and that inhibitors of free-radical reactions may be used for the prevention of the depolymerization of DNA by irradiation. The viscosity of the DNA solutions after injection of 5-methoxytryptamine followed by irradiation remained normal for six hours after exposure. After 24 hours it dropped to the level found in irradiated rats which were not given injections of the protector. 5-methoxytryptamine prevents the depolymerization of DNA induced by irradiation but its effect is of short duration. The data obtained indicate that the method can be used for determining the extent to which radioprotective chemicals affect the inhibition of primary radiochemical reactions involving nucleic acids.

[SGM]

Card 2/2



ACCESSION NR: AP4027974

S/0205/64/004/002/0244/0247

AUTHOR: Yakovlev, V. G.; Isupova, L. S.

TITLE: Interaction of tissue proteins with radioprotectors containing sulfur

SOURCE: Radiobiologiya, v. 4, no. 2, 1964, 244-247

TOPIC TAGS: radioprotector, cysteine, cysteine n-propyl ether, beta-mercaptopropylamine, azidothioformic acid, diethylthiocarbamate, S<sup>35</sup> tagging, liver tissue protein, spleen tissue protein, protein radioactivity, disulfide bond, radioprotective action mechanism

ABSTRACT: The capacity of radioprotective substances containing sulfur to combine with tissue proteins of the liver and spleen was investigated in vivo in white mice. For these experiments several radioprotectors were synthesized and tagged with radioactive sulfur S<sup>35</sup>: cysteine, cysteine n-propyl ether, beta-mercaptopropylamine, azidothioformic acid, and diethylthiocarbamate. These preparations were administered intraperitoneally in optimal doses to the experimental animals. Animals were decapitated 30 min later. Liver and spleen were prepared for separation of dry protein. Radioactivity of

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Gord

ACCESSION NR: AP4027974

air-dried protein was measured in 10-mg portions uniformly distributed over a 2-cm<sup>2</sup> area. Air-dried protein was reduced by a modified Kolthoff method using a copper-ammonia-sulfite reagent to prove that the radioprotector is linked to the proteins by disulfide bonds. Findings show that cysteine, cysteine n-propyl ether, and beta-mercaptopyrrolamine combine with the proteins by means of disulfide bonds. But radioprotectors containing a dithioformate group as in azidothioformic acid do not form strong bonds with tissue proteins. Apparently the radioprotective action mechanism of these substances is not related to the formation of mixed disulfide bonds and is accomplished by some other means. Orig. art. has: 4 tables.

ASSOCIATION: none

SUBMITTED: 19Feb63

DATE ACQ: 28Apr64

ENCL: 00

SUB CODE: AM

NO REF SOV: 006

OTHER: 003

Card 2/2

L 7011-65 EWO(j)/EWT(m) Pa-1/Pb-1 APWL/BSO/AMD/SSN/AS(mp)-2/  
RAFM(t)

ACCESSION NR: AP4043213

S/0205/64/004/004/0516/0520

AUTHOR: Isupova, L. S.; Yakovlev, V. G.

TITLE: Some observations of the effect of oxygen on the action of  
irradiation of rats B

SOURCE: Radiobiologiya, v. 4, no. 4, 1964, 516-520

TOPIC TAGS: irradiation, oxygen effect, SH group, liver tissue,  
spleen tissue, oxygen atmosphere, radioprotection, cysteine, radio-  
biology

ABSTRACT: A series of experiments has been performed in order to  
clarify the role of ambient oxygen in biological reactions to irra-  
diation. It was established first that exposure of rats to all-oxygen  
atmospheres for periods from 30 min to 12 hr does materially affect  
the nonprotein SH-group content of liver and spleen tissues. Secondly,  
it was established that the rise in the nonprotein SH-group content  
of spleen tissues due to the injection of a sulphydryl radioprotector  
was identical for short-term exposure to normal and to  
oxygen atmospheres. Thirdly, it was established that irradiation of

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L 7011-65

ACCESSION NR: AP4043213

C

cystein-protected rats was not significantly affected by exposure for 10 min to an all-oxygen atmosphere. This means that intensification of oxydation of nonprotein SH-groups does not take place in tissues of irradiated rats in an oxygen atmosphere. When rats without chemical protection were exposed to gamma-ray doses of 750 r, the dosage proved 100% fatal for rats in an oxygen atmosphere as well as those in a normal atmosphere. When rats were administered cystein 20 min before irradiation, the percentage surviving in a normal atmosphere was somewhat higher than those in an oxygen atmosphere, but the difference cannot be considered statistically significant. This indicates that cysteine does not lose its radioprotective properties when the animals are irradiated in an all-oxygen atmosphere. However, a reduction of oxygen in the atmosphere has a certain protective value. Rats exposed to doses of 750 r, which proved 100% lethal when the animals were in a normal or an all-oxygen atmosphere, were only 33% lethal in a 72%-oxygen atmosphere and 100% nonlethal in a 5%-oxygen atmosphere. On the other hand, the increased radiosensitivity to oxygen atmospheres under excess pressure can be partially accounted for by a change in the physiological condition of the animals. Orig. art. has: 4 tables and 1 figure.

Card 2/3

L 7011-65

ACCESSION NR: AP4043213

ASSOCIATION: none

SUBMITTED: 25Dec62

ATD PRESS: 3103

ENCL: 00

SUB CODE: LS

NO REV SOV: 009

OTHER: 000

Card 3/3

KHARCHENKO, K., inzh.; ISUPOVA, S.

Partial zig-zag type antenna. Radio no.1:24-27 Ja '65. (MIRA 1814)

PETROV, K.M.; DYAKONOV, V.I.; FADEYEV, I.G.; SEMENENKO, P.P.; KRYUKOV, L.G.;  
Prinimali uchastiye: PASTUKHOV, A.I.; SHISHKINA, N.I.;  
PAZDNIKOVA, T.S.; CHIRKOVA, S.N.; KAREL'SKAYA, T.A.; LOPTEV, A.A.;  
DZEMYAN, S.K.; ISUPOV, V.F.; BELYAKOV, A.I.; GUDOV, V.I.;  
SUKHMAN, L.Ya.; SLESAREV, S.G.; GOLOVANOV, M.M.; GLAGOLENKO, V.V.;  
ISUPOVA, T.A.; ZYABLITSEVA, M.A.; KAMENSKAYA, G.A.; POMUKHIN, M.G.;  
UTKINA, V.A.; MANEVICH, L.G.

Vacuum treatment of alloyed open hearth steel. Stal' 22 no.2:113-  
117 F '62. (MIRA 15:2)

1. Ural'skiy nauchno-issledovatel'skiy institut chernykh metallov  
(for Pastukhov, Shishkina, Pazdnikova, Chirkova, Karel'skaya,  
Loptev, Dzemyan). 2. Metallurgicheskii kombinat im. A.K. Serova  
(for Isupov, Belyakov, Gudov, Sukhman, Slesarev, Golovanov,  
Glagolenko, Isupova, Zyablitseva, Kamenskaya). 3. 6-y Gosudar-  
stvennyy podshipnikovyy zavod (for Pomukhin, Utkina, Manevich).  
(Steel—Metallurgy)  
(Vacuum metallurgy)

KELER, B.K.; ISUPOVA, Ye.N.

Solid phases in the system  $\text{BeO} - \text{TiO}_2$ . Zhur.neorg.khim. 5 no.2:  
433-436 F '60. (MIRA 13:6)

1. Institut khimii silikatov Akademii nauk SSSR.  
(Beryllium oxide) (Titanium oxide)



ISUPOVA, Ye.N.; KEIMER, E.K.

Interaction in the system  $\text{BeO} - \text{SiO}_2$ . Zhur.neorg.khim. 5  
no.5:1126-1131 My '60. (MIRA 13:7)

1. Institut khimii silikatov Akademii nauk SSSR. Laboratoriya  
sintez tekhnicheskikh silikatov.  
(Beryllium oxide) (Silica)

ACCESSION NR: AP4012446

S/0078/64/009/002/0394/0402

AUTHORS: Isupova, Ye. N.; Keler, E. K.

TITLE: Reaction in the BaO--BeO system

SOURCE: Zhurnal neorg. khim., v. 9, no. 2, 1964, 394-402

TOPIC TAGS: barium oxide containing system, beryllium oxide containing system, thermal analysis, x-ray analysis, chemical analysis, microscopic analysis, barium beryllium sub 3 oxygen sub 4, barium sub 2 beryllium sub 3 oxygen sub 4, density, optical property, crystal lattice dimension, phase diagram

ABSTRACT: As a partial investigation of the reaction in the BaO-BeO-SiO<sub>2</sub> system, the reaction of the oxides in the BaO--BeO system was studied to determine composition, temperature conditions and physical properties of the compounds formed in the 900-1300C temperature interval (fig. 1). Thermal, x-ray, chemical and microscopic (in daylight and ultraviolet light) analyses were used. Two compounds exist in the system: Ba<sub>2</sub>Be<sub>3</sub>O<sub>5</sub> ( $d_{25}^{25} = 4.53$  gm./cc., melting 1725C) and BaBe<sub>3</sub>O<sub>4</sub> ( $d_{25}^{25} = 4.06$  gm./cc., melting 1540C). BaBe<sub>3</sub>O<sub>4</sub> is formed at temperatures above 1280C but decomposes below 1200C to Ba<sub>2</sub>Be<sub>3</sub>O<sub>5</sub> and

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ACCESSION NR: AP4012446

BeO. The optical and some chemical properties of the two compounds were determined. The parameters of the  $\text{Ba}_2\text{Be}_2\text{O}_5$  lattice were calculated:  $a_0 = 7.40\text{\AA}$ ,  $b_0 = 9.40\text{\AA}$ ,  $c_0 = 19.4\text{\AA}$ . Orig. art. has: 6 figures and 2 tables.

ASSOCIATION: None

SUBMITTED: 21Feb63

DATE ACQ: 26Feb64

ENCL: 01

SUB CODE: PH, CH

NR REF SOV: 002

OTHER: 005

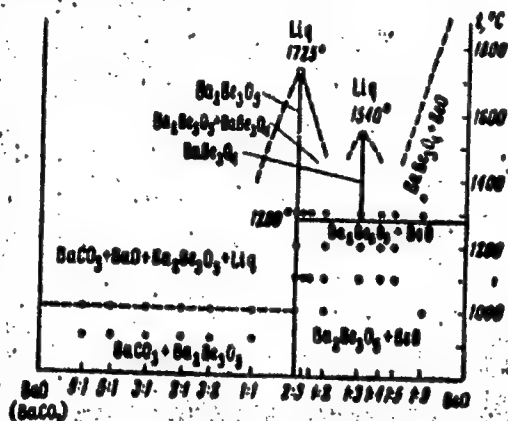
Card 2/3

ACCESSION NR: AP4012446

ENCLOSURE: 01

Fig. 1

Phase diagram of the composition of the BaO--BeO system.



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ACCESSION NR: AP4012447

S/0078/64/009/002/0403/0413

AUTHORS: Isupova, Ye. N.; Keler, E. K.

TITLE: Reaction in the BaO--BeO--SiO<sub>2</sub> system

SOURCE: Zhurnal neorg. khim., v. 9, no. 2, 1964, 403-413

TOPIC TAGS: barium oxide containing system, beryllium oxide containing system, silicon dioxide containing system, phase diagram, Ba<sub>2</sub>Be<sub>3</sub>O<sub>5</sub>, BaBeSiO<sub>4</sub>, BaBe<sub>2</sub>Si<sub>2</sub>O<sub>7</sub>, Ba<sub>2</sub>SiO<sub>4</sub>, BaSiO<sub>3</sub>, interplanar distance, physical properties, density, optical properties, synthesis, berylite

ABSTRACT: The reaction of the oxides in the BaO--BeO--SiO<sub>2</sub> system was studied. Phase diagram (fig. 1) shows the following compounds are obtained: Ba<sub>2</sub>Be<sub>3</sub>O<sub>5</sub>, BaBeSiO<sub>4</sub>, BaBe<sub>2</sub>Si<sub>2</sub>O<sub>7</sub>, Ba<sub>2</sub>SiO<sub>4</sub> and BaSiO<sub>3</sub>. The interplanar distances were measured and the chemical and physical properties (density, optical characteristics) of BaBeSiO<sub>4</sub> and BaBe<sub>2</sub>Si<sub>2</sub>O<sub>7</sub> were studied; the latter compares with the chemical properties of the mineral berylite. Temperature and calcining time for the synthesis of BaBe<sub>2</sub>Si<sub>2</sub>O<sub>7</sub> and BaBeSiO<sub>4</sub> were determined (fig. 2): optima for the first compound? 8-10 hours at 1350C, 77% yield; for the

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ACCESSION NR: AP4012447

second, 5 hours at 13500, 90% yield. Orig. art. has: 7 Figures,  
5 Tables and 2 Equations.

ASSOCIATION: None

SUBMITTED: 21Feb63

DATE ACQ: 26Feb64

ENCL: 02

SUB CODE: PH

NR REF SOV: 011

OTHER: 003

Card 2/12

L 49786-65 EWT(m)/EWP(a)/EWP(t)/EWP(b)/EWP(1)

IJP(\*) JD/40

ACCESSION NR: AP5009372

UR/0163/65/001/002/0222/0226

AUTHOR: Isupova, Ye. N.; Lilejev, I. S.

TITLE: Synthesis and properties of lanthanum borates

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 2, 1965, 222-226

TOPIC TAGS: Lanthanum borate, Inorganic synthesis

ABSTRACT: Conditions for the synthesis of lanthanum borates and the chemical stability of these compounds were studied. Lanthanum borates were synthesized by exchange reaction between lanthanum sulfate and sodium borates and also directly from  $\text{La}_2\text{O}_3$  and  $\text{B}_2\text{O}_3$ . The synthesis of lanthanum compounds by exchange reaction facilitates lowering of the temperature and less expensive and more abundant materials than the oxides may be used. The reactions of  $\text{La}_2\text{O}_3$  with  $\text{H}_2\text{O}$  in the 1100-1300°C range produced two compounds: lanthanum metaborate,  $\text{La}(\text{BO}_2)_3$  and lanthanum orthoborate,  $\text{LaBO}_3$ . The exchange reactions between lanthanum sulfate and sodium borates take place in the 900-1000°C interval. It was shown that both  $\text{La}(\text{BO}_2)_3$  and  $\text{LaBO}_3$  may be synthesized by this method. The article describes the experimental condi-

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L 49786-65

ACCESSION NR: AP5009372

tions which are necessary for this synthesis. It was established that  $\text{LaBO}_3$  is not decomposed by cold or boiling water nor by cold or boiling 6 and 12 N NaOH, while  $\text{La}(\text{BO}_2)_3$  is completely destroyed by alkali. "The major part of the chemical analysis was done by A. V. Bystrova." Orig. art. has: 4 figures and 2 tables.

ASSOCIATION: Institut khimii silikatov im. I. V. Grebenshchikova Akademii nauk SSSR (Institute of Chemistry of Silicates, Academy of Sciences USSR)

SUBMITTED: 19Oct64

ENCL: 00

SUB CODE: MT, GC

NO REF SOV: 004

OTHER: 004

B3B  
Card 2/2



ISUPOVA, Ye.N.; LILEYEV, I.S.

Synthesis and some properties of lanthanum borates. Izv. AN SSSR.  
Neorg. mat. 1 no.2:222-226 F '65. (MIRA 18:7)

1. Institut khimii silikatov imeni Gribenshchikova AN SSSR.

L 1558-66 EWT(m)/EPT(c)/EPT(n)-2/EMP(j)/EMP(t)/EMP(b)/ETC(m) IJP(c)/RPL  
 JD/WW/JW/JG/RM  
 ACCESSION NR: AP5022266

UR/0363/65/001/007/1143/1151

AUTHOR: Glushkova, V. B.; Isupova, Ye. N.

TITLE: Thermodynamic calculations of solid phase reactions between oxides of elements of groups II and IV of the periodic table

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 7, 1965, 1143-1151

TOPIC TAGS: thermodynamic calculation, titanate, silicate, zirconate, heat capacity, enthalpy, entropy, beryllium compound, titanium oxide, thermochemistry

ABSTRACT: An analysis of the thermodynamic calculations for solid-phase processes occurring at high temperatures was carried out in which the following formulas were employed:

$$\left( \Delta G_T = \Delta H_T - T\Delta S_T; \Delta G_T^\circ = \Delta H_{T=0}^\circ + T \cdot \Delta / \epsilon; / \epsilon / = \left( \frac{G_T^\circ - H(T^\circ)}{T} \right) \right)$$

Methods of calculation of the temperature dependence of the heat capacity  $C_p$  are analyzed for the case of titanates, silicates, and zirconates of elements of group II, and the values obtained are compared. A comparison between the methods

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ACCESSION NR: AP5022266

of calculating the enthalpies of formation is also made. The methods described account for the instability of oxides of elements in groups II and IV; for example, it is shown that from the thermochemical standpoint, no compounds can form in the BeO-TiO<sub>2</sub> system. The thermodynamic instability of beryllium orthosilicate in the absence of mineralizers is also substantiated. Orig. art. has: 2 figures, 4 tables, and 7 formulas.

ASSOCIATION: Institut khimii silikatov im. I. V. Grebenshchikova Akademii nauk SSSR (Institute of Silicate Chemistry, Academy of Sciences, SSSR)

SUBMITTED: 01Feb65

ENCL: 00

SUB CODE: S5, TD

NO REF SOV: 018

OTHER: 012

Card

2/2

MARKOV, Nikolay Fedorovich; LUZHETSKIY, Dmitriy Georgiyevich; ISURIN,  
Boris Iosifovich; KUPRIYANOV, F.S., retsenzent; SOKOLOVA, V.I.,  
redaktor; MEDVEDEV, L.Ya., tekhnicheskii redaktor

[Design, assembly and adjustment of multiple shuttle turret looms in  
the cotton weaving industry] Ustroistvo, montazh i naladka mnogo -  
chelnochnykh revol'vernykh tkatskikh stankov khlopchatobumashnoi  
promyshlennosti. Moskva, Gos. nauchno-tekhn. ind-vo Ministerstva  
legkoi promyshl. SSSR, 1956. 218 p. (MLRA 9:10)  
(Looms) (Cotton weaving)